Atty: David E. Lovejoy
Tel No: 415-362-3800

Atty Doc No: AMDH-08155US0 DEL
Inventor 1: Ronald Hilton
Title:MEMORY ADDRESS PREDICTION UNDER EMULATION

Express Mail No:
EL622696054US

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FIG. 1

SOURCE CODE — 8

COMPILER/ASSEMBLER — 9

EXECUTABLE CODE — 10

LC   LC   LC — 16

12-F   HOST SYSTEM

$EMULATOR_2$ — 12-2 $EMULATOR_F$

TC_2 TC_F

13-1   14-1   13-2   14-2   13-F   14-F

$OPERATING$ $SYSTEM_1$	$OPERATING$ $SYSTEM_2$	$OPERATING$ $SYSTEM_F$
$HARDWARE$ $SYSTEM_1$	$HARDWARE$ $SYSTEM_2$	$HARDWARE$ $SYSTEM_F$

● ● ●

15-F

15-1   15-2

FIG. 2

LC

HOST SYSTEM — 16

24

GROUP ACCESS — 10

LC_G

LEGACY CODE TRANSLATOR — 21

TRANSLATOR STORE

REGISTER FLAG STORE — 25

13-F

EXECUTION UNIT

TC_F

TRANSLATED CODE CACHE — 23

Current Date:14/11/01   Time Edit:14/11/01-11:57   Time Print:14/11/01-11:57
Path:m:\del\wp\amdh_all\amdh8\8155pa\dwg\
Name:8155_01^11^14-fi.vsd

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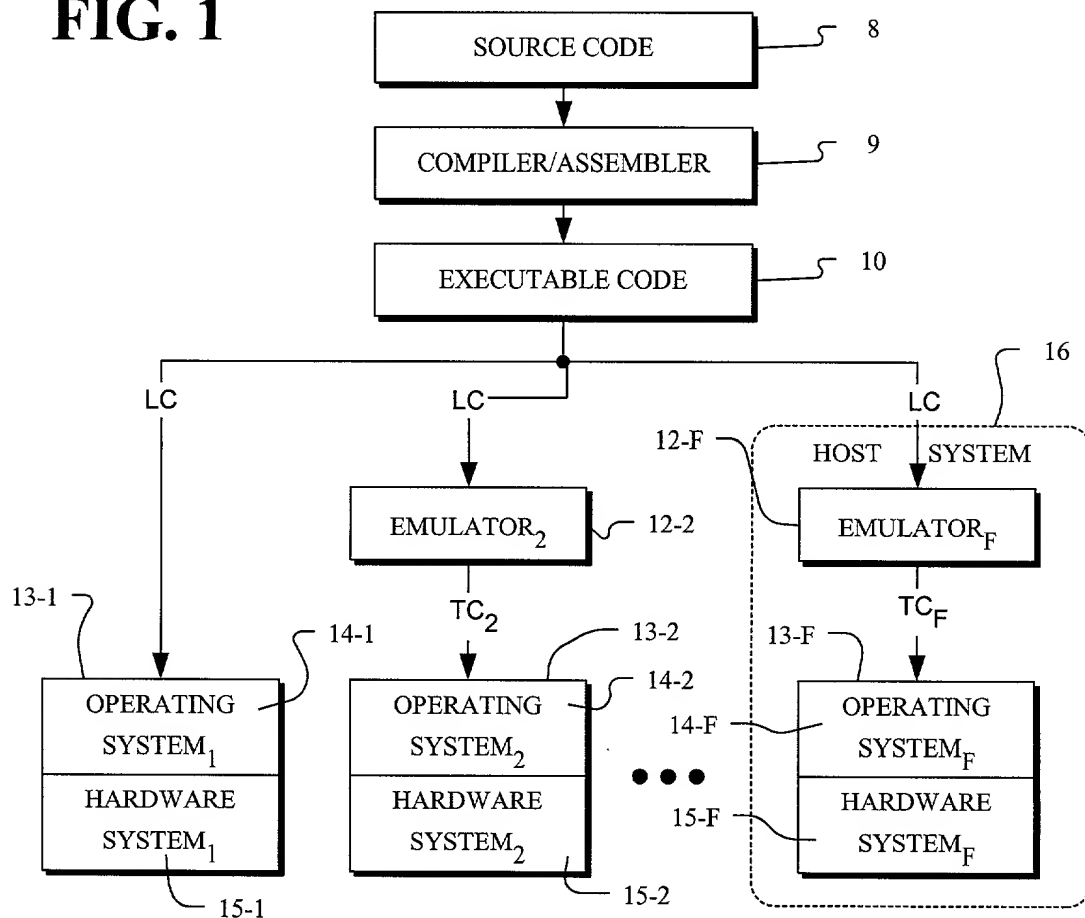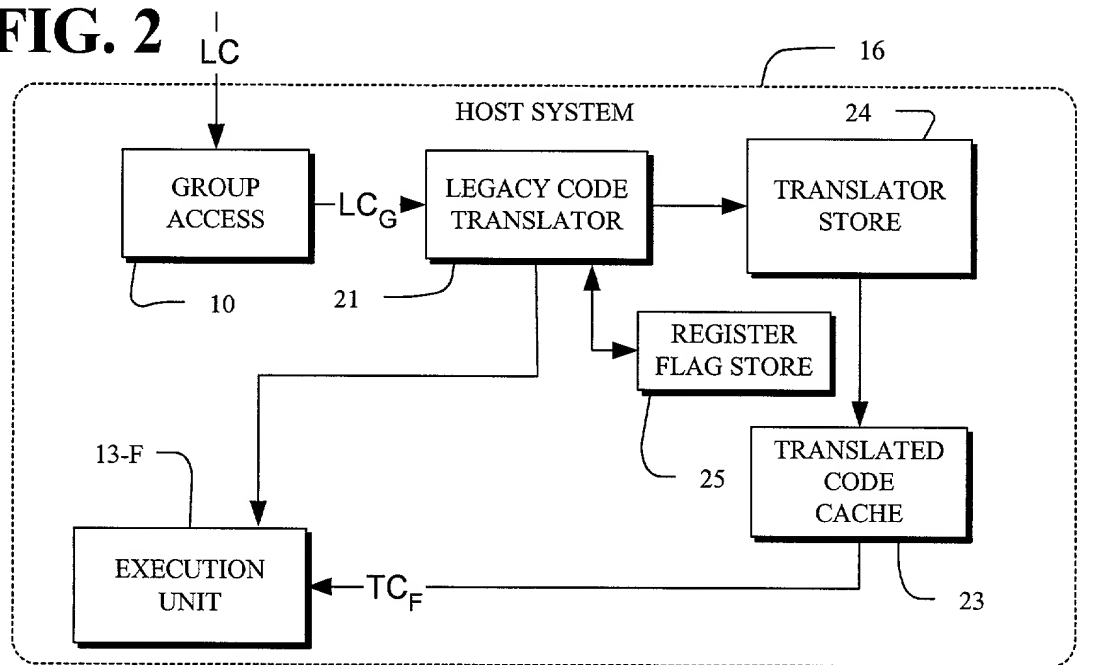EL622696054US

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FIG. 3

LEGACY CODE (CISC)

```
100    START    BALR    B1,R0
102    BASE     LM      R1,R2,DATA1
106             MVC     DATA1, DATA3
10C             AH      R1,DATA2
110             SRA     R1,1
114             SH      R2,DATA2
118             AR      R1,R2
11A             BC      TARGET
120    DATA1    DC      X'005390BC'
                DC      X'09C20004'
128    DATA2    DC      X'0009'
12A    DATA3    DC      X'800039AF'
```

```
100    START    BALR    B1, R0
102    BASE     LM      R1, R2,DATA1
106             MVC     DATA1, DATA3
10C             AH      R1, DATA2
```

TRANSLATED CODE (RISC)

```
BALR  MOV  B1   BASE
LM    ADD  A1   B1,DATA1 - BASE
      LD4  R1   [A1]
      ADD  A1   A1,4
      LD4  R2   [A1]
MVC   ADD  A1   B1,DATA1-BASE
      ADD  A2   B1,DATA3-BASE
      LD4  T1   [A2]
      ST4  T1   [A1]
AH    ADD  A1   B1,DATA2 -BASE
      LD2  T1   [A1]
      ADD  R1   R1,T1
      B         XFER_SEQUENTIAL
```

```
110             SRA  R1,1
114             SH   R2,DATA2
118             AR   R1,R2
11A             BC   TARGET
```

```
120    DATA1    DC   X'005390BC'
                DC   X'09C20004'
128    DATA2    DC   X'0009'
12A    DATA3    DC   X'800039AF'
```

```
SRA   SHR  R1   1
SH    ADD  A1   B1,DATA2 -BASE
      LD2  T1   [A1]
      SUB  R2   R2,T1
AR    ADD  R1   R1,R2
BC    ADD  A1   B1,TARGET - BASE
      B         XFER_BRANCH
```

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Path:m:\del\wp\amdh_all\amdh8\8155pa\dwg\
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FIG. 4

LEGACY CODE (CISC)

100	START	BALR	B1,R0
102	BASE	LM	R1,R2,DATA1
106		MVC . . .	

TRANSLATED CODE (RISC)

BALR	MOV	B1	BASE
LM	ADD	A1	B1,DATA1-BASE
	LD4	R1	[A1]
	ADD	A1	A1,4
	LD4	R2	[A1]
MVC	B	RESUME_TRANSLATION	
	. . .		

	. . .	DATA1,DATA3
10C		AH R1,DATA2

BALR	MOV	B1	BASE
LM	ADD	A1	B1,DATA1-BASE
	LD4	R1	[A1]
	ADD	A1	A1,4
	LD4	R2	[A1]
MVC	ADD	A1	B1,DATA1-BASE
	ADD	A2	B1,DATA3-BASE
	LD2	T1	[A2]
	ADD	A2	A2,2
	LD2	T2	[A2]
	SHL	T1	T1,16
	OR	T1	T1,T2
	ST4	T1	[A1]
AH	ADD	A1	B1,DATA2-BASE
	LD2	T1	[A1]
	ADD	R1	R1,T1
	B	XFER_SEQUENTIAL	

110	SRA	R1,1
114	SH	R2,DATA2
118	AR	R1,R2
11A	BC	TARGET

SRA	SHR	R1	1
SH	ADD	A1	B1,DATA2-BASE
	LD2	T1	[A1]
	SUB	R2	R2,T1
AR	ADD	R1	R1,R2
BC	ADD	A1	B1,TARGET-BASE
	B	XFER_BRANCH	

120	DATA1	DC	X'005390BC'
		DC	X'09C20004'
128	DATA2	DC	X'0009'
12A	DATA3	DC	X'800039AF'

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